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EXAMINER	
RUMP, RICHARD M	
ART UNIT	**PAPER NUMBER**
1736	

NOTIFICATION DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/582,707	TWITCHEN ET AL.	
	Examiner	Art Unit	
	RICHARD M. RUMP	1736	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 June 2011*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on ____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

5)☒ Claim(s) *1,3-30,32-40 and 44-79* is/are pending in the application.

5a) Of the above claim(s) *54-74* is/are withdrawn from consideration.

6)☐ Claim(s) ____ is/are allowed.

7)☒ Claim(s) *1, 3-30, 32-40, 44-53 and 75-79* is/are rejected.

8)☐ Claim(s) ____ is/are objected to.

9)☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

10)☐ The specification is objected to by the Examiner.

11)☐ The drawing(s) filed on ____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

12)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. ____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date ____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. ____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: ____.

DETAILED ACTION

Status of Application

Claims 1, 3-30, 32-40, 44-53 and 75-79 are pending and presented for examination. Claims 54-74 are withdrawn from consideration.

The 112(2) rejection is WITHDRAWN.

Claim Rejections - 35 USC §§ 102 & 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1 & 3-9, 11, 21-26, 29-35, 44-49, 51-52 and 75-79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linares et al (WO 03/014427) with "Gem-Quality Synthetic Diamonds Grown By A Chemical Vapor Deposition (CVD) Method" to Wang as an evidentiary reference.

Regarding claims 1 and 29, Linares teaches a method of growing a single crystal diamond by using a diamond substrate with a certain orientation in a CVD process (pg 32, lines 31-32), introducing a source gas to grow a single crystal diamond having a certain orientation, wherein the incorporation of a boron dopant is controlled (pg 33, lines 8-30). Linares discloses that the doping of the diamond structure by dopant atoms increases the average distance between carbon atoms in the diamond because the dopant atoms are larger than carbon atoms (pg 13, lines 23-31). Thus, these marks made by the dopant would only be viewable under special viewing conditions, and can be considered fingerprints. Linares further discloses that the addition of boron in

diamond results in optical absorption in the near infrared. Thus, the mark caused by boron impurities would be rendered detectable when the diamond material is exposed to a certain radiation. It is to be noted that the addition of an impurity is disclosed by applicant and that it will result in the formation of a defect (one-dimensional defect *inter alia* a point defect) which will result in a change of the phononic vibration frequency of the cubic diamond structure. One of ordinary skill in the art of crystallography would be aware of this fact and would know that as such, the structure will vibrate at a characteristic wavelength. Said characteristic wavelength can be controlled via said adjustment to which a skilled artisan would do.

While Linares does not expressly state creation of a gemstone, it is evidenced by Wang and Linares, discloses that not only that CVD diamonds are commonly used as gemstones (see Conclusion) but also that CVD grown diamonds are indistinguishable under normal microscopy by one a skilled gemologist **WITHOUT** usage of special IR techniques (see *Id.*).

It is also noted that Linares would obviously cover gemstones since CVD quality diamonds are routinely comprised of that level of purity in a face (See Wang's discussion on facets).

Regarding claims 3 and 4, Linares teaches a process of incorporating boron impurities into a single crystal diamond, wherein the source gas has been enriched with diborane (pg 35, lines 17-20). This would inherently cause the boron dopant to be provided in one or more layers or regions of the diamond material during synthesis, as the dopant is introduced in a controlled manner continuously.

Regarding claim 7, Linares discloses that the single crystal diamond contains boron (pg 33, lines 8-30). Boron doping is known to impart a blue coloration to diamond crystal, as disclosed in Linares (pg 16, lines 9-12). Because the blue wavelength lies within 400 to 500 nm, it is inherent that a diamond crystal with boron doping would phosphoresce within the range of the instant claim.

Regarding claims 8-9, Linares discloses a boron concentration in the single crystal diamond between 0.03 ppm and 3,000 ppm. The instant claim recites an overlapping range, which is a prima facie case of obviousness (See MPEP 2144.05). It would have been obvious, at the time of invention, for one skilled in the art to select a concentration within the range prescribed by Linares.

Regarding claim 11, Linares discloses that the boron content is higher than the nitrogen content (pg 27, lines 22-29).

Regarding claim 21-23, doping the diamond crystal would inherently produce a defect center because the dopant atoms (boron or nitrogen) are larger than carbon atoms (pg 13, lines 23-30), and that these defects are not found in natural diamond because the defects present in the CVD diamonds are doped in a controlled manner, which is different from that of a naturally occurring diamond.

For claims 24-25, modifying the diamond would inherently cause the optical properties of the diamond to change, thereby altering the measurable optical properties, allowing changes to be measured and thereby allowing identification of modification.

Regarding claim 26, Linares discloses that the doped diamond crystal have a unique combination of properties as a result of their impurities (pg 12, lines 1-14). Thus,

it would be inherent that the resulting fingerprint can be used to identify the synthetic nature of the material it is present in.

Regarding claim 30, Linares teaches a single crystal diamond by using a substrate with a certain orientation in a CVD process (pg 32, lines 31-32), introducing a source gas to grow a single crystal diamond having a certain orientation, wherein the incorporation of a boron dopant is controlled (pg 33, lines 8-30). Linares discloses that the doping of the diamond structure by dopant atoms increases the average distance between carbon atoms in the diamond because the dopant atoms are larger than carbon atoms (pg 13, lines 23-31). Thus, these marks made by the dopant would only be viewable under special viewing conditions, and can be considered fingerprints.

Regarding claim 31, Linares discloses that the CVD single crystal diamond may be used as a gemstone (pg 15, lines 23-27).

Regarding claims 32-34, doping the diamond crystal would inherently produce a defect center because the dopant atoms (boron or nitrogen) are larger than carbon atoms (pg 13, lines 23-30), and that these defects are not found in natural diamond because the defects present in the CVD diamonds are doped in a controlled manner, which is different from that of a naturally occurring diamond.

Regarding claim 35, it is readily apparent that the impurities as fingerprint form defect centers because they are larger than carbon atoms. Furthermore, it is also readily apparent to observe optical properties through the table of the gemstone, as doing so minimizes refraction.

Regarding claim 40, Linares discloses a CVD single crystal diamond wherein there are a multitude of doped layers (pg 39, lines 20-23). It is readily apparent to one skilled in the art that a gemstone cut from this diamond would have layers approximately parallel with the table of the gemstone, since the top layer would already be flat and therefore be the basis for the gemstone table.

Regarding claims 44-47, Linares discloses a CVD single crystal diamond doped with boron that has layer thickness of 250 μm (pg 40, lines 18-24).

For claims 48-49, Linares discloses a CVD single crystal diamond doped with nitrogen that has layer thickness of at least 20 μm, preferably at least 50 μm (pg 25, lines 11-27).

Regarding claim 51, Linares discloses that the CVD single crystal diamond may contain layers of varying impurity levels. This would inherently possess properties of having discrete layers under suitable illumination conditions because varying levels of impurities would alter the illumination patterns.

Regarding claim 52, Linares discloses that the CVD single crystal diamond may contain a layer free of defects while other layers have defects (pg 12, lines 15-22).

Regarding claims 75, it is found in at least one layer (*Id.*).

Regarding claims 77-78, the mark of origin could exist in more than one layer as it would merely be a duplication of the method steps and accordingly a *prima facie* case of obviousness exists (See MPEP 2144.05). A spacer layer would merely be a layer where it was not performed.

Regarding claim 79, since no optical properties are changed, the limitations of instant claim 79 is considered met.

Claims 5-6, 12, 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linares et al (WO 03/014427), as evidenced by Wang and Vlasov (*Relative Abundance of Single and Vacancy-Bonded Substitutional Nitrogen in CVD Diamond,* phys. Stat. sol 181, 83, 2000).

Regarding claims 5-6, Linares recognizes that nitrogen doping may be used for similar purposes as boron doping (pg 14, lines 20-30). If nitrogen is used as a dopant in the single crystal diamond structure, the single crystal diamond would inherently show photoluminescence peaks at 533 nm, 575 nm or 638 nm as evidenced by Vlasov et al (*Relative Abundance of Single and Vacancy-Bonded Substitutional Nitrogen in CVD Diamond,* pg 85, Fig. 1).

Regarding claim 12, Linares discloses that the single diamond crystal may contain boron and nitrogen content (pg 22, lines 10-18). Boron is known to impart a blue coloration to diamond crystal, as disclosed in Linares (pg 16, lines 9-12). Because the blue wavelength lies within 400 to 500 nm, it is inherent that a diamond crystal with boron doping would phosphoresce within the range of the instant claim. Additionally, if nitrogen is used as a dopant in the single crystal diamond It is also noted that doping causes introduction of strain, this strain will change the crystal properties.

Structure, the single crystal diamond would inherently show photoluminescence peaks at 533 nm, 575 nm or 638 nm as evidenced by Vlasov et al (*Relative Abundance of Single and Vacancy-Bonded Substitutional Nitrogen in CVD Diamond,* pg 85, Fig. 1).

Regarding claim 50, Linares discloses that nitrogen doping may be used for similar purposes as boron doping (pg 14, lines 20-30). If nitrogen is used as a dopant in the single crystal diamond structure, the single crystal diamond would inherently show photoluminescence peaks at 575 nm and 638 nm as evidenced by Vlasov et al (*Relative Abundance of Single and Vacancy-Bonded Substitutional Nitrogen in CVD Diamond,* pg 85, Fig. 1). These wavelengths are associated with orange colorations. Additionally, boron doping is known to impart a blue coloration to diamond crystal, as disclosed in Linares (pg 16, lines 9-12).

Claims 36-38 rejected under 35 U.S.C. 103(a) as being unpatentable over Linares et al (WO 03/014427) with Wang, further in view of Gilbertson (US Patent 6,665,058).

Regarding claim 36, Linares does not disclose a gemstone having a solid geometrical shape or an unfilled geometrical shape, with an axial symmetry perpendicular to the table of the gemstone.

Gilbertson discloses a method of determining the symmetry for gemstones having the qualities of the instant claim (abstract).

It would have been obvious at the time of invention to one of ordinary skill in the art to apply the teachings of Gilbertson to Linares in order to make a gemstone having a solid geometrical shape with axial symmetry perpendicular to the table of the gemstone because the lack of such features decreases the brilliance of the gemstone as well as its value (Gilbertson, column 4, lines 5-15).

For claim 37, Gilbertson teaches a gemstone that has a generally round shape (see Fig 5-8). This generally round shape lends to the symmetry of the gemstone. Any feature observable through the table of the gemstone would constitute a spot.

Regarding claim 38, the gemstones of Gilbertson (Fig. 5-8) have round brilliant forms (columns 3-4, lines 33-4).

Claims 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linares et al (WO 03/014427) with Wang, in view of Falabella (US Patent 5,474,816) and Fernandes et al ("Porous silicon capping by CVD diamond", *Vacuum*, Vol 52, pg 215-218).

Regarding claims 13 and 14, Linares does not disclose a layer or region that emits 737 nm radiation. Falabella teaches a diamond material containing silicon dopants (column 3, lines 23-48). According to Fernandes, silicon has photoluminescence at 737nm (pg 216, Fig 2).

One of ordinary skill in the art would have been motivated to use silicon as a dopant in a CVD single crystal diamond, as taught by Falabella, in the process taught by Linares because it reduces the stress levels present in the diamond (column 3, lines 23-48).

Regarding claim 15 and 16, neither Linares nor Falabella disclose the concentration of silicon added as a dopant in the single crystal diamond. Linares does disclose that the amount of impurity present affects the crystal lattice of the diamond structure (pg 13, lines 25-28). Thus, it would have been obvious to one of ordinary skill in the art at the time of invention to optimize the concentration of the dopant present in

the diamond to arrive at a dopant concentration that would not adversely affect the diamond structure (See MPEP 2144.05 II).

Claims 17-18 & 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linares et al (WO 03/014427) with wang, in view of Vlasov et al (*Relative Abundance of Single and Vacancy-Bonded Substitutional Nitrogen in CVD Diamond,* phys. Stat. sol 181, 83, 2000).

Regarding claim 17, Linares discloses that single diamond crystals containing impurities such as boron have optical absorption coefficients, but does not teach their observance with the human eye using filters and lenses.

Vlasov teaches measuring the luminescence with a spectrometer (pg. 84), which inherently have lenses and filters incorporated within them. This luminescence would be observed with the human eye if desired, because the luminescence is within the visible wavelengths (pg 85).

It would have been obvious to one of ordinary skill in the art at the time of invention to use the method of Vlasov to determine the level of impurities present in the diamond crystal made in Linares because the process of Vlasov can be used to determine the amount and type of dopants present in the crystal (Vlasov, pg 84).

Regarding claim 18, Vlasov measures the intensity of the photoluminescence emitted by the dopants in the crystal (pg 85, Fig 1).

Regarding claim 20, Vlasov shows an optical image capture that is produced from a spectrophotometer, which inherently containts lenses and filters (pg 85, Fig 1).

Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Linares et al (WO 03/014427) with Wang in view of Vlasov et al (*Relative Abundance of Single and Vacancy-Bonded Substitutional Nitrogen in CVD Diamond,* phys. Stat. sol 181, 83, 2000), as applied to claim 18 above, further in view of Falabella (US Patent 5,474,816) and Fernandes et al ("Porous silicon capping by CVD diamond", *Vacuum*, Vol 52, pg 215-218).

Regarding claim 19, Linares in view of Vlasov do not teach detecting 737 nm radiation. Falabella and Fernandes teach silicon doping of diamonds (Falabella, column 3, lines 23-48; Fernandes, pg 216, Fig 2), which would inherently give off 737 nm radiation (Fernandes, pg 216, Fig 2).

Thus, one of ordinary skill in the art at the time of invention would be motivated to detect 737 nm radiation using the radiation detection method of Vlasov in the process taught by Linares modified by Falabella, because if silicon impurities were present in the diamond, then one would want to detect their presence.

Claims 27-28, 53 are rejected under 35 U.S.C. 103(a) as being unpatentable over Linares et al (WO 03/014427), in view of Gresser (US Patent 4,392,476).

Regarding claims 27-28, Linares does not teach the impurity as a fingerprint being used to identify the manufacturer or in the manner of a trademark.

Gresser teaches a method of placing identifying indicia on the surface of gemstones, such as trademark symbols or names (column 2, lines 13-23).

Thus, it would have been obvious at the time of invention to one of ordinary skill in the art to use the impurity fingerprint of Linares to identify the manufacturer or in the

manner of a trademark, in order to categorize various characteristics of the diamond for valuation purposes as described by Gresser (Gresser, column 1, lines 10-17).

Regarding claim 53, the process of Linares in view of Gresser necessarily produce a gemstone product containing a fingerprint used in the manner of a trademark.

Claim 39 is rejected under 35 U.S.C. 103(a) as being unpatentable over Linares et al (WO 03/014427) with Wang, as applied to claim 35 above, further in view of Buchner (US Patent 5,524,458).

Regarding claim 39, Linares does not teach a rectangular shaped gemstone.

Buchner teaches gemstones that have rectangular shapes (see Fig 2, items 4, 8), as described in the specification (column 8, lines 8-13).

It would have been obvious to one of ordinary skill at the time of invention to make a gemstone with a rectangular shape as taught by Buchner, as it is clear that there is demand for gemstones of such shapes, from the product made by the process taught by Linares.

Because of the way in which the diamond is made in the process of Linares, the observable feature would be in the shape of a square because the doping is done by layer (pg 14, lines 20-30), and so the features would take the shape of the cut gemstone.

Claims 1, 3-5, 8-11, 17, 20-40, 44-48, 51-53, 75 are rejected under 35 U.S.C. 102(e) as being unpatentable over US PG Pub No. 20040180205 to Scarsbrook (cited by applicant) with Wang as an evidentiary reference.

Regarding claims 1, 17, 21-23 & 26-29, Scarsbrook discloses a method of producing a single CVD diamodn via nitrogen doping (paragraph 8, example 1). The diamond is gemstone quality (paragraph 31). As to claim 75, this can be on one layer.

Wang discloses the same *supra*, that a CVD diamond will exhibit a quality which can only be detected under special viewing conditions due to luminescence from dopants (such as nitrogen) which are not readily viewable under normal viewing conditions. As such nitrogen/boron doping will result in a mark of origin (or a "trademark") not readily detectable.

Regarding claim 3, doping is within a layer (*Id.*).

Regarding claim 4, dopants are added in a gaseous form (paragraph 6).

Regarding claim 5, nitrogen is added (*Id.*) and will exhibit these same wavelengths all things the same.

Regarding claims 8-9, boron is added at 1×10^{14} atoms/cc which would be less than 0.1 ppm but greater than 0.0001 ppm.

Regarding claims 10-11, one nitrogen atom is added per boron atom (paragraph 16). This lies "within a factor of ten" as required by the instant claim.

Regarding claims 18 & 20, FTIR meets this limitation and is utilized by Scarsbrook (paragraph 26).

Regarding claims 24-25, modification of the diamond is possible as evidenced by Wang (introduction).

Regarding claim 29, a diamond substrate can be utilized (paragraph 67).

Regarding claim 30, 32-35, Scarsbrook discloses a single CVD diamond containing greater than 0.5 ppm and less than 1000 ppm nitrogen (falls within cited range; paragraphs 31-33). The nitrogen inherently forms in defect centers.

Regarding claims 36-40, various shapes can be employed and are envisaged ([0035]).

Regarding claims 46-48, layers of 100 microns can be employed (abstract).

Regarding claim 50, Scarsbrook et al. teaches the desire for low or absent luminescent features at 575 and 637 (paragraph 24). Scarsbrook eteaches a Raman line measure at 300 K is preferably less than 2.5 cm but does not teach an absorption coefficient at room temperature (paragraph 25). The diamond taught by Scarsbroo. would inherently meet one of the absorption coefficients claimed by applicant because Scarsbrook teaches the uniform diamond with specific doping.

Regarding claims 51-52, as evidenced by Wang different layers can have different properties. This is due to antisotropy introduced by the strain imposed by dopants.

Regarding claim 53, as evidenced by Wang the characteristic luminescence would enable one to tell if the diamond was produced via CVD.

Claims 13-16 & 19 (as per claim 18) are rejected under 35 U.S.C. 103(a) as being unpatentable over Scarsbrook with Wang in view of "Raman photoluminescence and Morphological Studies of Si- and N-doped Diamond Films Grown on Si(100) substrate by Hot filament Chemical Vapor deposition Technique" to Musale.

As to claims 13-14, silicon exhibits a wavelength of 737 nm. However Scarsbrook does not disclose doping with silicon.

In a CVD diamond production, Musale teaches doping with 0.0% silicon 9table 1).

Therefore it would have been obvious to one of ordinary skill in the art at the time of invention to perform the method of Wang in view of the Si doping of Musale. The teaching or suggested motivation in doing so is to control crystallite size and edge sharpness (page 85, column 2).

Regarding claim 16, silicon is added at greater than 0.00001 ppm.

With respect to claim 19, this is also taught as per claim 18.

Claims 76-77 and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Scarsbrook.

Regarding claims 76-77 and 79, Scarsbrook discloses one layer however growth of multiple layers is well within the level of ordinary skill in the art, especially including the doping. This is merely reproduction of process/growth steps which would be well within the level of ordinary skill.

Response to Arguments

Applicant's arguments filed 23 June 2011 have been fully considered and are persuasive with respect to the instant amendment. However a new grounds of rejection was employed and rebuttals shall be provided in reply thereto.

Applicants argue that Linares' doping would be " . . . readily detactable under normal viewing conditions . . . " (remarks at 3). Applicants seem to be mis-construing

the purpose of the boron doping. While it is directly to control the color (A blue diamond is something a consumer may very well wish to have, this is a purposeful doping that does not change **ANY** of the 4 Cs with that respect (Color or clarity specifically, cost will increase due to the cost of CVD diamond production; such that a blue diamond does not effect the perceived quality since market demand exists). As shown by Wang this is a type IIb diamond (Wang: Page 271 last partial paragrpahon right hand column). While the Examiner notes that evidence of a substrate however may be disclosed in the diamonds wrought by Lineras, a skilled gemologist would select a proper cut of the diamond to remove this. If applicants are claiming doping of a CVD diamond such that it remains colorless when doped, that may be an avenue of amendment that applicant wishes to persue.

Applicants seem to contend that the coloration is a result-effective variable. The introduction of dopants into the crystal lattice of diamond will inherently produce strain. This strain is what causes diamonds to have a change in color. However, as shown by Wang creation of any CVD diamond will inherently result in an inclusion of a fingerprint of CVD diamond (See conclusion, relevant portion reproduced):

> "Faceted pieces of this material [CVD grown diamond] do not exhibit most of the characteristics features of HPHT-grown synthetic diamond (Which is a competing type of diamond production; emphasis) (such as **pronounced color and fluorescence zoning**, or metal inclusions, although they do have a **distinctive strain pattern**. Strong orangy red luminescence as seen in the DiamondView (special IR apparatus) provides another good indication. **However, these CVD grown synthetic diamonds can be positively identified only by spectroscopy, with instrumentation that typically is available only in advanced gemological labatories.**" (Emphasis added).

Accordingly, any arguments that Lineras does not produce a mark of origin without effect the perceived quality of the diamond is moot. The mark of origin is visually undetectable versus that of any other blue diamond. As such the change in Lineras renders applicants argument that Lineras cannot possibly be drawn to gemstones since there would be a ". . .perceptible change in the visual characteristics of the gemstone under normal viewing conditions." (remarks at 4). This also backs up the Examiner's position that there is no “color change” as the color change is done to produce a certain colored diamond which is something commonly employed in CVD diamond production as characterized by Wang. *Inter alia* the fingerprint is not the blue coloration of the diamond but the orangy luminescence it exhibits which is only viewable under specialized viewing conditions.

Since the doping concentration is still within that claimed by applicant it would as such follow that the same IR excitement would exist. Table 1 exhibits the various wavelengths used in Wang. While the employed wavelengths in Lineras differ, they are still obvious for the reasons stated *supra*.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RICHARD M. RUMP whose telephone number is (571)270-5848. The examiner can normally be reached on Monday through Friday 7:00 AM-4:30 PM (-5 GMT).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (571)272-1358. The fax phone

number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. M. R./

Examiner, Art Unit 1736

/Stuart Hendrickson/

Primary Examiner, Art Unit 1736